

Ria Chevli
200416701
ENSE375- Final Report

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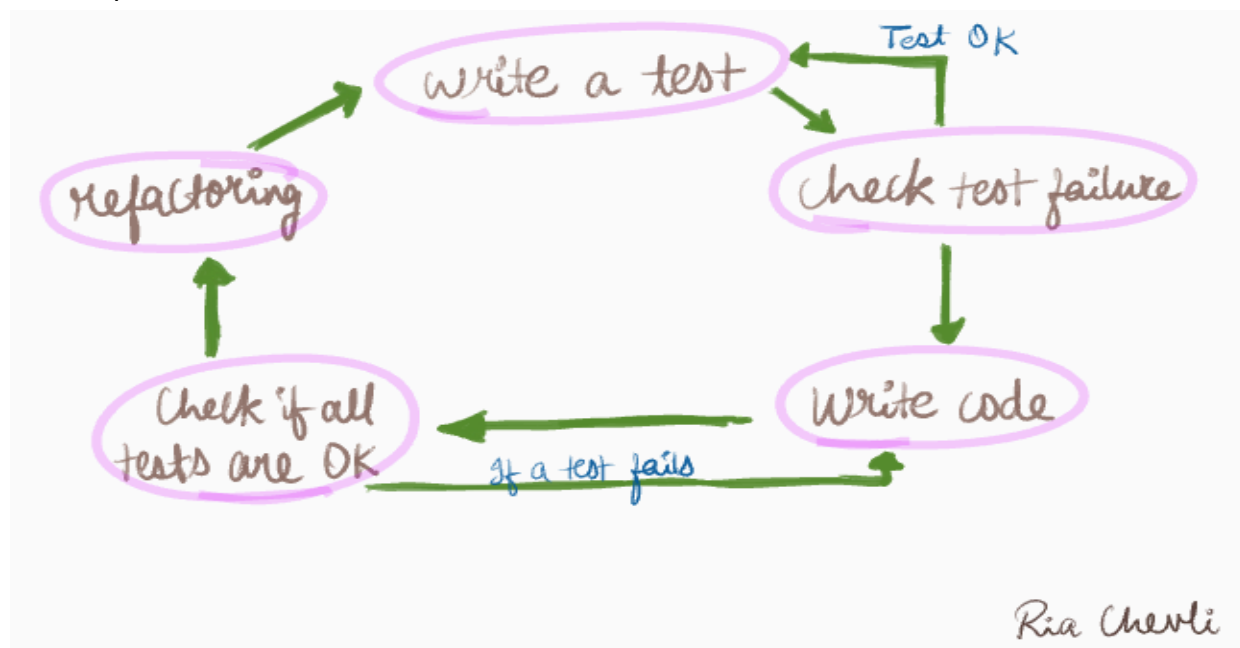
1. Development of code: using TDD

Test driven development method is used to develop this code for the final.

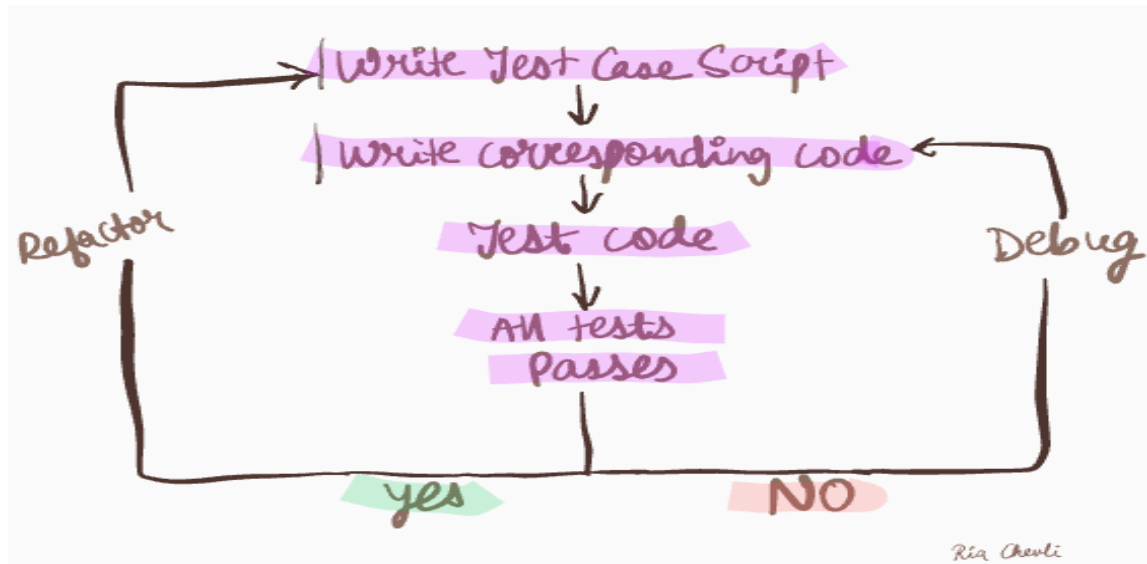
- We begin by writing test cases
- We make a test table out of all those possible test cases we just wrote
- After we have our test cases, we begin to write code.
- At this stage we enter a continuous loop of testing and development

TDD puts testing first and gets us to think about quality of our code and ways to make it better and bug free at the very early steps of development (keeping in mind the curve for average cost for fixing the bug.)

TDD helps us write better code in faster time.



2. Test Script: The strategy used to make the test case script is:

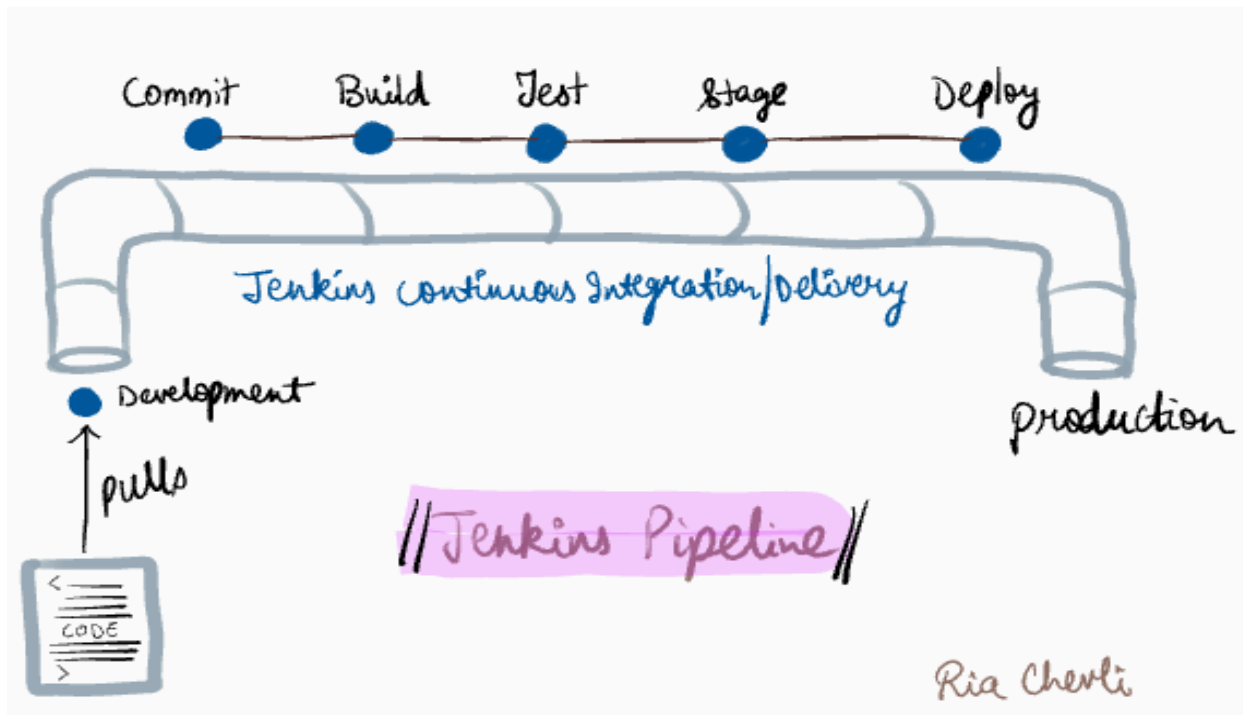


3. Jenkins

Jenkins is an open source automation tool written in Java with plug-ins built for continuous Integration purposes. It uses jenkins pipeline for this process from where

- Jenkins pull the code from Git
- Commit the code to each branch
- It then builds and compile the code to validate and review
- After validation, the code is tested

- After all the testing is done, it packages into var/jar file



I set up my jenkins project, made a pipeline called **rsc767_ENSE375_Final** and linked it with github by editing the configure tab and pasting the URL for the repository **375_Final** made on github. I was sure to make it 'private' till the end of the due time and make it public to let professor access if need be.

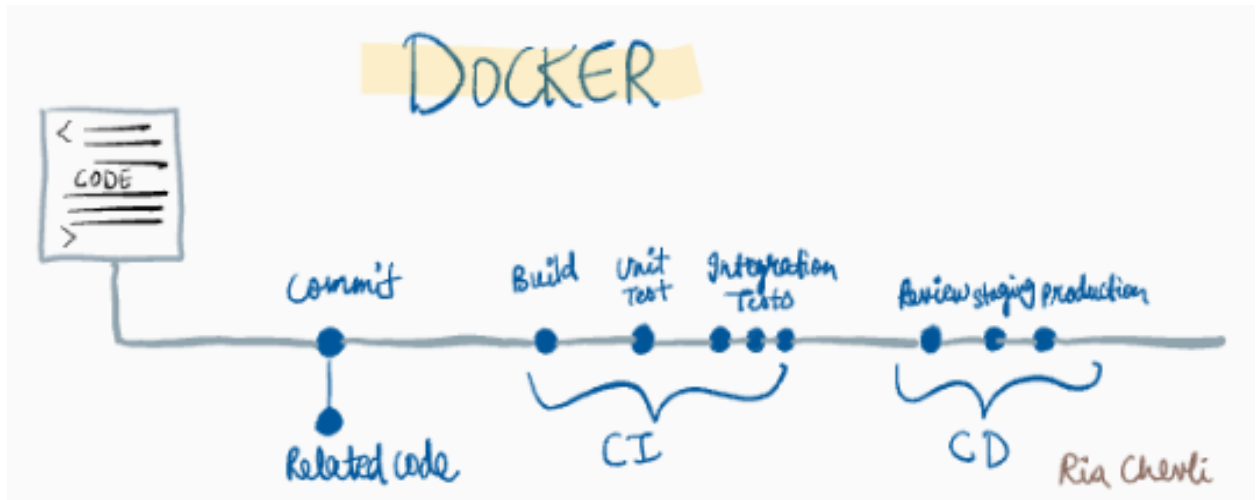
We open the terminal and make the following steps:

- Do **git init** and **git status**

4.Docker

- Docker file builds a docker image and that particular image will contain all the code for the project.
- We can run that image to create as many docker containers as we wish

- We can upload the image on docker hub and anyone can pull it and build a container.



5. Solutions to Questions

Q1- To install a plugin: Test Results Analyzer:

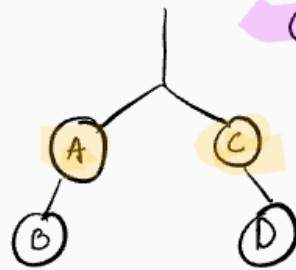
- Go to dashboard jenkins
- Click on manage jenkins
- Click on manage plugins
- Under available, search “Test Results Analyzer” and checkmark and install without restart. A blue dot saying success indicates it is successfully installed

Q2- Implemented the code

Below is the CGF for the method : toTime24

Q2. Class: Time24, Method: toTime24

if loops



CFG

A: Comparing to PM
 B: hours == 12
 C: Comparing to PM
 D: hours < 12

C: comparing to AM* (error)
 The paths could be AB or CD

| | |
|--------------------------------|-------------------|
| To write test case script/code | Running test code |
|--------------------------------|-------------------|

| Test case # | Test case groups | Input | Expected output | Actual output | Evaluate |
|-------------|--------------------|----------|-----------------|---------------|----------|
| 1 | Time in am | 8:30 am | 8:30 | | |
| 2 | Time in pm | 8:30 pm | 20:30 | | |
| 3 | Invalid time input | Aa:30 pm | Invalid input | | |

Q3- Pairwise coverage for input domain modeling: A value from each block for each characteristic must be combined with a value from every block for each other characteristic.

So our characteristics would be the kind of difference we get i.e,

- A = No when there is no difference in time.
- B = Neg when time difference is negative,
- C = Pos when time difference is positive,

| Input argument | characteristic | Block1(b1) | Block2 (b2) |
|----------------|----------------|------------|-------------|
| difference | No difference | true | false |
| | Neg difference | true | false |
| | Pos difference | true | false |

| partition | b1 | b2 | b3 | b4 |
|--------------------|---------------------|----------------------|----------------------|--------------------|
| q1 ="difference" | A1= "No difference" | A2= "Neg difference" | A3= "Pos difference" | A4="Invalid input" |
| values----->> > | difference ==0 | difference <= -1 | difference >=1 | |

| | |
|--------------------------------|-------------------|
| To write test case script/code | Running test code |
|--------------------------------|-------------------|

| Test case # | Test case groups | Input | Expected output | Actual output | Evaluate |
|-------------|------------------|---------------------|-----------------|---------------|----------|
| 1 | Neg difference | 8:30 am- 8:30 pm | -12:00 | | |
| 2 | Pos difference | 8:30 pm- 8:30 am | 12:00 | | |
| 3 | No difference | 8:30 pm- 8:30 pm | 0:00 | | |
| 4 | invalid | Aa:00 | Invalid input | | |

Q4-

So our characteristics would be the kind of difference we get i.e,

- A = d1 (date 1)
- B = d2 (date 2)

| Input argument | characteristic | Block1(b1) | Block2 (b2) |
|----------------|----------------|------------|-------------|
| date1 | day | true | false |
| | month | true | fasle |
| | year | true | false |
| date2 | day | true | false |
| | month | true | fasle |
| | year | true | false |

Note : These dates (d1 and d2) should comply with the legal date format.

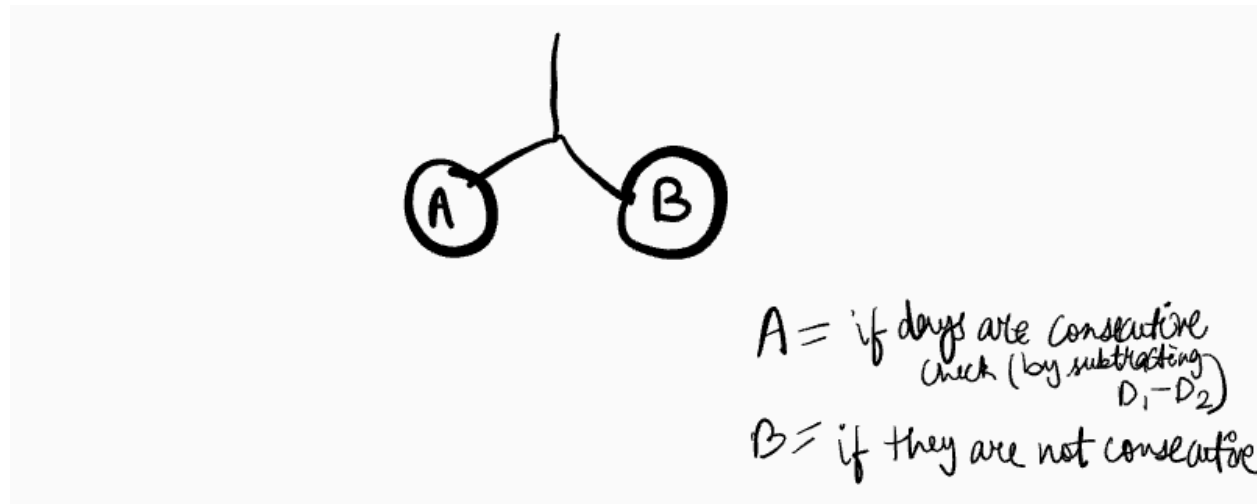
| partition | b1 | b2 | b3 | b4 |
|---------------|----------------------|------------------------------|------------------------|--------------------|
| q1 ="date" | A1= "day" | A2= "month" | A3= "year" | A4="Invalid input" |
| values----->> | d1 (day)<=d2(day) | d1 (month)<=d2(month) | d1 (year)<=d2(year) | |

| | |
|--------------------------------|-------------------|
| To write test case script/code | Running test code |
|--------------------------------|-------------------|

| Test case # | Test case groups | Input | Expected output | Actual output | Evaluate |
|-------------|------------------|----------|-----------------|---------------|----------|
| 1 | day | 04 | | | |
| 2 | month | 05 (may) | | | |

| | | | | | |
|---|---------|-------|--|--|--|
| 3 | year | 2021 | | | |
| 4 | invalid | Aa:00 | | | |

Q5-



I did not have extra time left to record the Q6 part as video takes longer to upload.

Also, I shared my google drive video with this email:

Mohamed.El-Darieby@uregina.ca

I am attaching this youtube link just to be on safe side. Note: The video is unlisted so it is only accessible to you as I am sharing the link. This link is not shared with anyone but the professor.

Youtube link: <https://youtu.be/GPxl-Q6b1yo>

References

- Class content and lecture/review notes for TDD by Professor El-Darieby (as guided in the preparation guide for final)
- https://www.youtube.com/watch?v=m0a2CzgLNsc&ab_channel=edureka%21
- <https://youtu.be/6osZS9zaRco>
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